REMARKS

Claims 1-5, 7-11, and 13-20 are pending in the application, of which Claims 1, 10, and 16 are independent. In the Office Action, the Examiner rejects Claims 1-2, 4-5, 7-11, 13, and 15-20 under 35 U.S.C. § 112, first paragraph, as being non-enabling for failing to "provide enablement for all predetermined control pressure and temperature values for the vessel which would have prevented ingress of moisture into paperboard." The Examiner also rejects Claims 1-2, 4-5, 7-11, 13, and 15-20 under 35 U.S.C. § 112, second paragraph, as being indefinite for reciting the limitation "a theoretical total pressure related to temperature" without making clear how the pressure is related to temperature or to what temperature the pressure is related. In addition, Claims 1-2, 4-5, 7-11, 13, and 15-20 remain rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,283,033, issued to Dodrill (hereinafter "Dodrill"), in view of U.S. Patent No. 6,177,048 B1, issued to Lagerstedt (hereinafter "Lagerstedt"). Further, Claims 3 and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Dodrill and Lagerstedt, and in further view of U.S. Patent No. 4,667,454, issued to McHenry et al.

In view of the present claim amendments and the remarks set forth below, applicant respectfully submits that Claims 1-5, 7-11, and 13-20 are in condition for allowance.

Rejections Under 35 U.S.C. § 112

35 U.S.C. § 112, First Paragraph

Claims 1-2, 4-5, 7-11, 13, and 15-20 under 35 U.S.C. § 112, first paragraph, as being non-enabling. While the Examiner admits that the specification is "enabling for preventing moisture from entering into the exposed edge of paperboard," the Examiner asserts that the specification "does not reasonably provide enablement for all predetermined control pressure and temperature values for the vessel which would have prevented ingress of moisture into paperboard." (Office Action at pages 2-3.) As explained in detail below, applicant respectfully

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

submits that one of ordinary skill in the art would be enabled by the specification to practice the invention as set forth in the claims.

Claim 1 recites a method of processing food that has been sealed in a container having a fiber-based material component. The method includes cooking the food product in a retort vessel and then "cooling the food product within the vessel by reducing the control temperature according to a predefined temperature schedule, said temperature schedule comprising a plurality of predetermined control temperature values."

Applicant respectfully submits that it would be well within the abilities of one of ordinary skill in the art of automated food processing to determine a plurality of control temperature values to define a temperature schedule in order to cool a food product that has been cooked in a retort vessel. While the timing and control temperatures of the temperature schedule would vary based on factors such as the type of food being cooked, the structure of the containers, the capabilities of the retort vessel, etc., one of ordinary skill in the art would no doubt be capable of defining a temperature schedule that accounts for these factors without undue experimentation.

Applicant further submits that, having defined a temperature schedule for cooling the food product, one of ordinary skill in the art would be able to define a pressure schedule commensurate with the scope of Claim 1 without undue experimentation. In this regard, Claim 1 recites a pressure schedule comprising "a plurality of predetermined control pressure values, each control pressure value corresponding to a control temperature value included in the temperature schedule." As presently amended, Claim 1 further recites that each control pressure value is "less than a theoretical total pressure related to the corresponding control temperature value" and that the theoretical total pressure is "calculated from a theoretical vapor pressure based on the corresponding control temperature and a theoretical partial air pressure based on the corresponding control temperature." Applicant respectfully submits that it would be within the

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

ability of one of ordinary skill in the art to determine a control pressure value corresponding to each control temperature value in the predetermined temperature schedule based on the theoretical vapor pressure and partial air pressure associated with each control temperature value.

In the Office Action, the Examiner asserts the following:

> [A] "predetermined" control temperature and pressure can be any pressure and temperature within the prior art to control the vessel, provided that they are predetermined. However, this would not have enabled one skilled in the art to prevent moisture from entering into the paperboard because a predetermined control pressure which is less than "a theoretical total pressure" would not have always resulted in the pressure within the container being greater that [sic] the pressure of the vessel such that moisture absorption is prevented. (Office Action at page 3.)

Applicant respectfully disagrees with the Examiner' assertion. First, applicant notes that as recited in Claim 1, the temperature and pressure schedules at issue are for the portion of the food processing during which the food product is being cooled. Because the food product is cooled by reducing the temperature within the vessel, the temperature of the food within the container will be inherently greater than or equal to the control temperature, which is recited to be inside the vessel and outside of the container. Consequently, unless the container is sealed so that a vacuum is initially present within the container, the momentary pressure inside the paperboard will be slightly higher than the momentary pressure inside the vessel and outside of the container, thus helping to prevent moisture absorption. Even if the container is sealed to have an initial vacuum, applicant respectfully submits that it would be well within the capabilities of one of ordinary skill in the art to modify the pressure schedule in order to account for the lower initial pressure within the container without undue experimentation. Further

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CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

applicant respectfully submits that it would not require undue experimentation for such a person to ensure that the control pressures of the pressure schedule were sufficient to prevent the container from bursting.

For at least the foregoing reasons, applicant respectfully submits that Claim 1 a presently amended fully complies with the enablement requirement of 35 U.S.C. § 112, first paragraph. Independent claims 10 and 16 are similarly amended, and for at least the reason discussed above with respect to Claim 1, applicant respectfully submits that Claims 10 and 16 also comply with the enablement requirement of 35 U.S.C. § 112, first paragraph. If the rejection of Claims 1, 10, and 16 is withdrawn, then the rejection of Claims 2-5, 7-9, 11, 13- 15, and 17-20, which depend therefrom, should also be withdrawn.

35 U.S.C. § 112, Second Paragraph

The Examiner also rejects Claims 1-2, 4-5, 7-11, 13, and 15-20 under 35 U.S.C. § 112, second paragraph, as being indefinite for reciting the limitation "a theoretical total pressure related to temperature" without making clear how the pressure is related to temperature or to what temperature the pressure is related. As previously noted, independent Claims 1, 10, and 16 are presently amended to recite that the control pressure values in the pressure schedule are "calculated from a theoretical vapor pressure based on the corresponding control temperature and a theoretical partial air pressure based on the corresponding control temperature." Accordingly, applicant respectfully submits that Claims 1, 10, and 16 as presently amended clearly recites the relationship between the control pressure values and the corresponding control temperatures and also makes clear "to what temperature the pressure is related."

In view of the foregoing amendments and remarks, applicant respectfully submits that independent Claims 1, 10, and 16 particularly point out and distinctly claim the subject matter that applicant regards as the invention. Accordingly, applicant respectfully requests that the

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

rejection of Claims 1, 10, and 16 as being indefinite be withdrawn. If the rejection of Claims 1, 10, and 16 is withdrawn, then the rejection of Claims 2, 4-5, 7-9, 11, 13, 15, and 17-20, which depend therefrom, should also be withdrawn.

Rejections Under 35 U.S.C. § 103(a)

Claims 1-2, 4-5, 7-11, 13, and 15-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Dodrill, in view of Lagerstedt. In addition, Claims 3 and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Dodrill and Lagerstedt, and in further view of McHenry et al. For at least the reasons set forth below, applicant respectfully submits that Claims 1-5, 7-11, and 13-20 are allowable over a theoretical combination of Dodrill and Lagerstedt.

The Cited References Do Not Teach Every Limitation of the Rejected Claims

Claim 1 recites a method of processing a food product that includes a cooling step, wherein the cooling step includes "cooling the food product within the vessel by reducing the control temperature according to a predefined temperature schedule." The cooling step further includes "actively reducing he control pressure according to a predefined temperature schedule; said pressure schedule comprising a plurality of predetermined control pressure values, each control pressure value corresponding to a control temperature value included in the temperature schedule and being less than a theoretical total pressure related to the corresponding control temperature value." Both the control temperature and the control pressure are recited to be "within the vessel and outside of the closed container." Claim 1 further recites that the theoretical total pressure used to determine the control pressure values are "calculated from a theoretical vapor pressure based on the corresponding control temperature and a theoretical partial air pressure based on the corresponding control temperature."

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1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

In summary, Claim 1 recites a cooling phase wherein the control temperature within the vessel and outside of the closed container is reduced according a predefined temperature schedule. The cooling phase further includes actively reducing the control pressure within the vessel and outside of the closed container according to a predefined pressure. Each control pressure value is determined to be less than a total pressure calculated from the corresponding control temperature value, which is within the vessel and outside of the closed container.

In contrast to the process recited in Claim 1, Dodrill teaches including two temperature probes within the food container in order to measure the temperature in the headspace of the container and the temperature of the container contents. (Col. 7, lines 3-15.) These temperature measurements are used to calculate a pressure inside of the container. (Col. 7, lines 15-30.) The pressure inside of the processing vessel and outside of the container is then adjusted to substantially match the pressure within the container that is calculated from the temperature measurements. (Col. 7, lines 31-34.) The temperature measurement, calculation, and vessel pressure adjustments are repeated periodically during the cooling process to maintain the pressure inside the container near enough to the pressure inside the vessel an outside of the container so that the pressure differential does not cause the container to irreversibly expand or contract. (Col. 7, lines 34-40.)

Dodrill does not teach or even suggest a cooling phase whereby pressure within the control vessel and outside of the container is controlled according to the temperature inside within the control vessel and outside of the container. Instead, Dodrill teaches a cooling phase that requires monitoring two different temperatures within the sealed food container. Including two temperature probes inside of the food container, as required to practice Dodrill, adds cost and complexity to the process. This additional cost and complexity is avoided in the method

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1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

recited in Claim 1, because it is not necessary to monitor any temperatures inside of the food containers.

Lagerstedt teaches a method for sterilizing a fiber based container filled with a food product. The method includes a cooling phase for the sterilization process during which the container is cooled with a medium not containing water, preferably air, until the container reaches the critical temperature. (Col. 3, lines 64-67.) When the container reaches critical temperature, the cooling medium not containing water is exchanged for water, which further cools the container. Lagerstedt further discloses that introducing the medium not containing water into the autoclave causes a reduction in the pressure of the autoclave. (Col. 2, lines 30-45.) However Lagerstedt does not teach or even suggest maintaining the pressure in the vessel during the cooling phase according to a pressure schedule based on the temperature schedule in the manner of Claim 1.

In view of the foregoing, applicant respectfully submits that Dodrill and Lagerstedt, even in theoretical combination, do not disclose all of the limitations of Claim 1.

The Examiner Has Not Provided an Explicit Analysis as to Why the Missing Limitations Would Have Been Obvious

As noted by the Federal Circuit, 35 U.S.C. § 103 prohibits hindsight reasoning when determining the obviousness of an invention. *In re Kahn*, 441 F.3d 977, 986 (2006). In *KSR v. Teleflex*, the Supreme Court reaffirmed the dangers of hindsight bias, noting that the analysis supporting a rejection under 35 U.S.C. § 103 should be made explicit. *KSR v. Teleflex*, 550 U.S. at ___, 82 USPQ2d at 1396. The Court, quoting *In re Kahn*, stated that "'[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.'" *Id.*

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

In the Office Action, the Examiner states the following:

> Regarding the new limitations to instant claim 1, wherein the control temperature and control pressure are within the vessel and outside of the closed container, Dodrill teaches using measurements and calculations of the pressure within the deformable package to determine the pressure (Column 5, Line 68 to Column 6, Line 4), temperature (Column 6, Line 66 to Column 7, Line 2; Column 11, Line 60 to Column 12, Line 22; Column 16, Lines 27-69) to be used in the processing tank. (Office Action at page 5.)

Applicant notes that the Examiner has failed to articulate a reason as to why the teachings of Dodrill and Lagerstedt would render obvious the limitation of Claim 1 wherein the control temperature and control pressure are within the vessel and outside of the closed container. As previously noted, Dodrill teaches controlling the temperature and pressure in the processing tank according to a measured temperature and a calculated pressure within the container. In contrast to Dodrill, Claim 1 recites controlling the pressure within the vessel and outside of the container to be less than a theoretical total pressure, wherein the theoretical total pressure is calculated from a theoretical vapor pressure based on a corresponding control temperature (within the vessel and outside of the container) and a theoretical partial air pressure based on the corresponding control temperature. While Lagerstedt acknowledges that the pressure within the vessel is reduced by the reduction in temperature within the vessel, Lagerstedt does not disclose a method of actively controlling the pressure within the vessel. In the Office Action, the Examiner has not provided an explicit analysis as to why one of ordinary skill in the art would have found it obvious to control the pressure in the vessel according to a measured temperature inside of the vessel and outside of the container, as recited in Claim 1, instead of according to a

measured temperature and calculated pressure inside of the container, as taught by Dodrill. Neither has the Examiner provided an explicit analysis as to why one of skill in the art would have found it obvious to modify the teachings of Lagerstedt, which does not regulate the pressure inside of the vessel, in order to actively control the pressure inside the vessel in the manner of Claim 1.

In view of the foregoing, applicant respectfully submits that Dodrill and Lagerstedt, even in theoretical combination, do not teach or suggest all of the limitations of Claim 1. Moreover, applicant respectfully submits that the Examiner has not provided an explicit analysis as to why one of ordinary skill in the art would have found it obvious to modify a theoretical combination of Dodrill and Lagerstedt in order to provide the missing limitations. Absent an explicit analysis by the Examiner to the contrary, applicant respectfully submits that the rejection of Claim 1 under 35 U.S.C. § 103 should be withdrawn. If Claim 1 is allowed, then Claims 2, 4-5, and 7-9, which depend therefrom, should also be allowed.

Independent Claims 10 and 16 recite food processing methods that include controlling pressure inside the vessel and outside of the container during the cooling phase in a manner similar to that recited in Claim 1. Accordingly, for the same reasons noted above with respect to Claim 1, applicant respectfully submits that Claims 10 and 16 are in condition for allowance. If Claims 10 and 16 are allowed, then Claims 11, 13, 15, and 17-20, which depend therefrom, should also be allowed.

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CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

Closure

In view of the foregoing amendments and remarks, applicant respectfully submits that Claims 1-5, 7-11, and 13-20 are in condition for allowance. An early and favorable action allowing the claims is respectfully solicited. The Examiner is invited to contact the undersigned by telephone at 206.695.1651 with any questions regarding this matter.

Respectfully submitted,

CHRISTENSEN O'CONNOR
JOHNSON KINDNESS[PLLC]

Matthew D. Balint
Registration No. 61,038
Direct Dial No. 206.695.1651

MDB/skg

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS[PLLC]
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100